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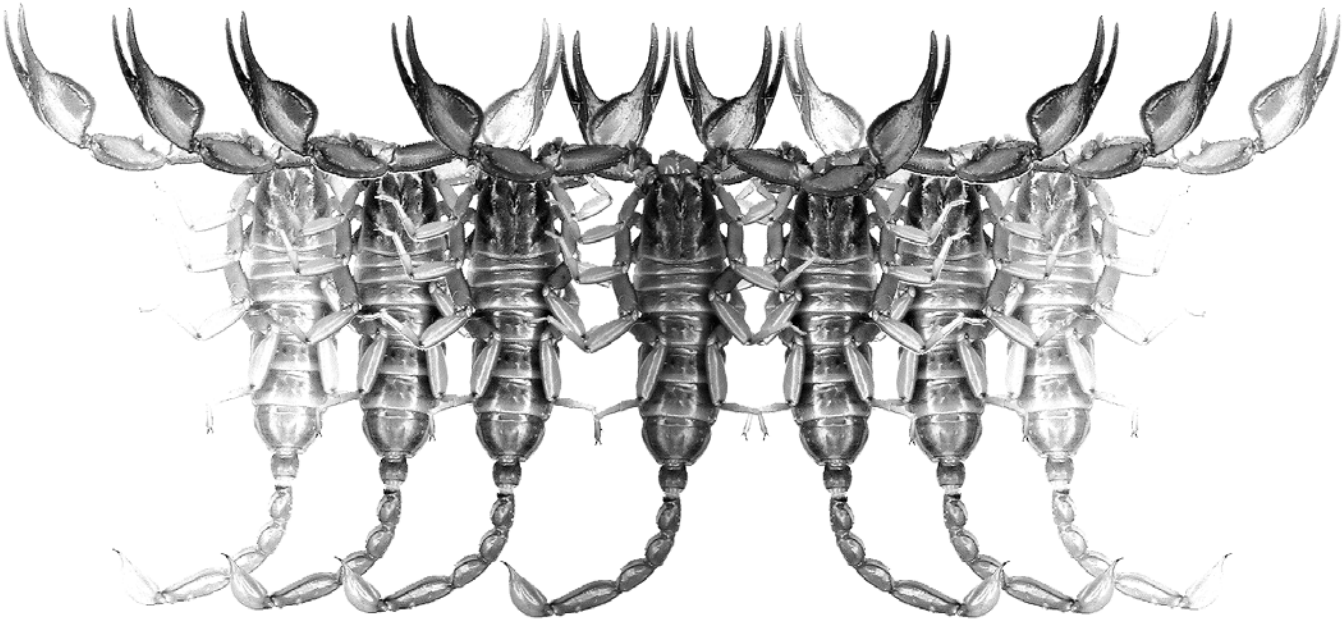

The Genus *Chaerilus* Simon, 1877 (Scorpiones, Chaerilidae) in the Indian Ocean Islands and Description of a New Species

Wilson R. Lourenço, Bernard Duhem & Elise-Anne Leguin

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- **ZISP**, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
- **WAM**, Western Australian Museum, Perth, Australia
- **NTNU**, Norwegian University of Science and Technology, Trondheim, Norway
- **OUMNH**, Oxford University Museum of Natural History, Oxford, UK
- **NEV**, Library Netherlands Entomological Society, Amsterdam, Netherlands

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The genus *Chaerilus* Simon, 1877 (Scorpiones, Chaerilidae) in the Indian Ocean Islands and description of a new species

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Summary

A new species is described belonging to the genus *Chaerilus* Simon, 1877. *Chaerilus andamanensis* sp. n. was discovered in the Island of Little Andaman in the Indian Ocean. The new species shows affinities with *Chaerilus variegatus* Simon, 1877 and *Chaerilus borneensis* Simon, 1880, respectively described from Java and Borneo. This is the first record of the genus *Chaerilus* in the Andaman Islands.

Introduction

The genus *Chaerilus* Simon, 1877 was originally created to accommodate *Chaerilus variegatus* Simon, 1877 (Simon, 1877), species described from Java. Subsequently, several other new species were described from the Indonesian islands, and nearby geographic regions such as Malaysia and Singapore (Simon, 1880; Pocock, 1894, 1899).

Recently, attempts to clarify the taxonomic status of several species from these tropical islands have been relatively successful. *Chaerilus celebensis* was redescribed and confirmed as an endemic element to the Celebes (Sulawesi) Island (Lourenço & Ythier, 2008; Lourenço, Sun & Zhu, 2010), and some new associated species have been described: *Chaerilus philippinus* Lourenço & Ythier, 2008 from the north of Luzon in the Philippines (Lourenço & Ythier, 2008), *Chaerilus telnovi* Lourenço, 2009 and *Chaerilus spinatus* Lourenço & Duhem, 2010 from Moluccas Islands (Lourenço, 2009; Lourenço & Duhem, 2010) and finally *Chaerilus thai* Lourenço, Sun & Zhu, 2010 from South of Thailand (Lourenço, Sun & Zhu, 2010).

Although some recent progress was accomplished on the knowledge of these tropical species of *Chaerilus*, the status of some ancient species remained unclear. This was the case for *C. variegatus* and *C. borneensis* Simon, 1880, species described by Simon (1877, 1880), from Java and Borneo, and considered as synonymous for more than a century (Kraepelin, 1894). In a recent note, however, the necessary justification was proposed to establish that both species are valid and distinct (Lourenço, Duhem & Leguin, 2010).

A new species belonging to the genus *Chaerilus* is described in the present note. It was collected from the Island of Little Andaman in the Indian Ocean. Only two scorpion species have previously been reported from Andaman Islands: *Isometrus maculatus* (DeGeer, 1778) and *Liocheles australasiae* (Fabricius, 1775) (Tikader & Bastawade, 1983). The description of the new species represents the first record of the genus *Chaerilus* in the Andaman Islands.

Geography and Ecology of the Islands

The Andaman and Nicobar Islands are a group of islands in the Indian Ocean and a Union Territory of India. The territory is geographically part of Southeast Asia, 150 km north of Aceh in Indonesia and separated from Thailand and Burma by the Andaman Sea. The two island groups are separated by the 10° N parallel, with the Andamans to the north of this latitude, and the Nicobars to the south. The Andaman Sea lies to the east and the Bay of Bengal to the west.

The total area of the Andaman Islands is some 6408 km^2. That of the Nicobar Islands approximately 1841 km^2. Little Andaman Island is the fourth largest of the Andaman Islands with an area of 734.39 km^2. It is geographically situated at the southern end of the

Figures 1−4: 1−2. *Chaerilus andamanensis* **sp. n.**, male holotype. Dorsal and ventral aspects. **3−4.** *Chaerilus borneensis*, male from north of Borneo. Dorsal and ventral aspects (scale bars = 1 cm).

archipelago. It is separated from Rutland Island in Great Andaman by the Duncan Passage.

The Islands are part of a great "island arc" created by the collision of the Indo-Australian plate with Eurasia. The collision lifted the Himalayas and most of the Indonesian islands, and created a long arc of highlands and islands, which includes the Arakan Yoma range of Myanmar, the Andaman and Nicobar islands, and the islands off the west coast of Sumatra, including the Banyak Islands and Mentawai Islands.

As a result of lower sea levels during the glaciations, the Andaman Islands were linked to the Southeast Asian mainland. Lower sea levels also linked the islands to one another (Lodrick, 2010).

The climate is warm and tropical, with temperatures ranging from 22 to 30°C. Rainfall is heavy due to annual monsoons and measures around 3000 to 3800 mm each year. The vegetation is typically divided into the coastal mangrove forests and the interior evergreen and deciduous Tropical and subtropical moist broadleaf forests. Local Tropical rainforest are composed of mixed floral elements from Indian, Myanmarese, Malaysian and endemic floral strains. About 2200 varieties of plants have been recorded, out of which 200 are endemic and 1300 do not occur in mainland India. The present forest coverage represents about 86% of the total land area.

Methods

Illustrations and measurements were made with the aid of a Wild M5 stereo-microscope with a drawing tube (camera lucida) and an ocular micrometer. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Hjelle (1990).

Taxonomy

Chaerilidae Pocock, 1893

Chaerilus Simon, 1877

***Chaerilus andamanensis* sp. n.**
Figures 1−2, 5−20

Diagnosis

Species of small size in relation to that of the other species in the genus, 24 mm in total length. General coloration yellowish, marked intensely with variegated brownish spots. Carapace moderately narrowed toward the anterior edge; acarinate and almost smooth; anterior margin almost straight with a minute concavity; furrows shallow. Metasomal carinae moderately marked; ventral carinae absent or obsolete on segments I and II, weakly marked on segments III and IV; latero-ventral and ventral carinae on segment V composed of spinoid granules. Telson with an elongated pear-like shape; aculeus very weakly curved. Dentate margins of fixed and movable fingers with 13-14 rows of granules. Pectinal tooth count 8-8 in male. Genital operculum plates have a sub-oval shape. Trichobothriotaxy of type B, orthobothriotaxic. Hemispermatophore unknown.

Relationships

Chaerilus andamanensis **sp. n.**, shows morphological similarities with *Chaerilus variegatus* Simon, 1877 and *Chaerilus borneensis* Simon, 1880 both described from the nearby Indonesian Islands of Java and Borneo. The new species can, however, be readily distinguished by the following combination of characters: (i) a pale coloration with variegated pigmentation, (ii) pectines with 8-8 teeth; a value rarely observed in the Indonesian species, (iii) Pedipalp chela fingers with 13-14 rows of granulations, (iv) movable finger of chela pedipalp without a basal lobe, (v) chela hand weakly enlarged.

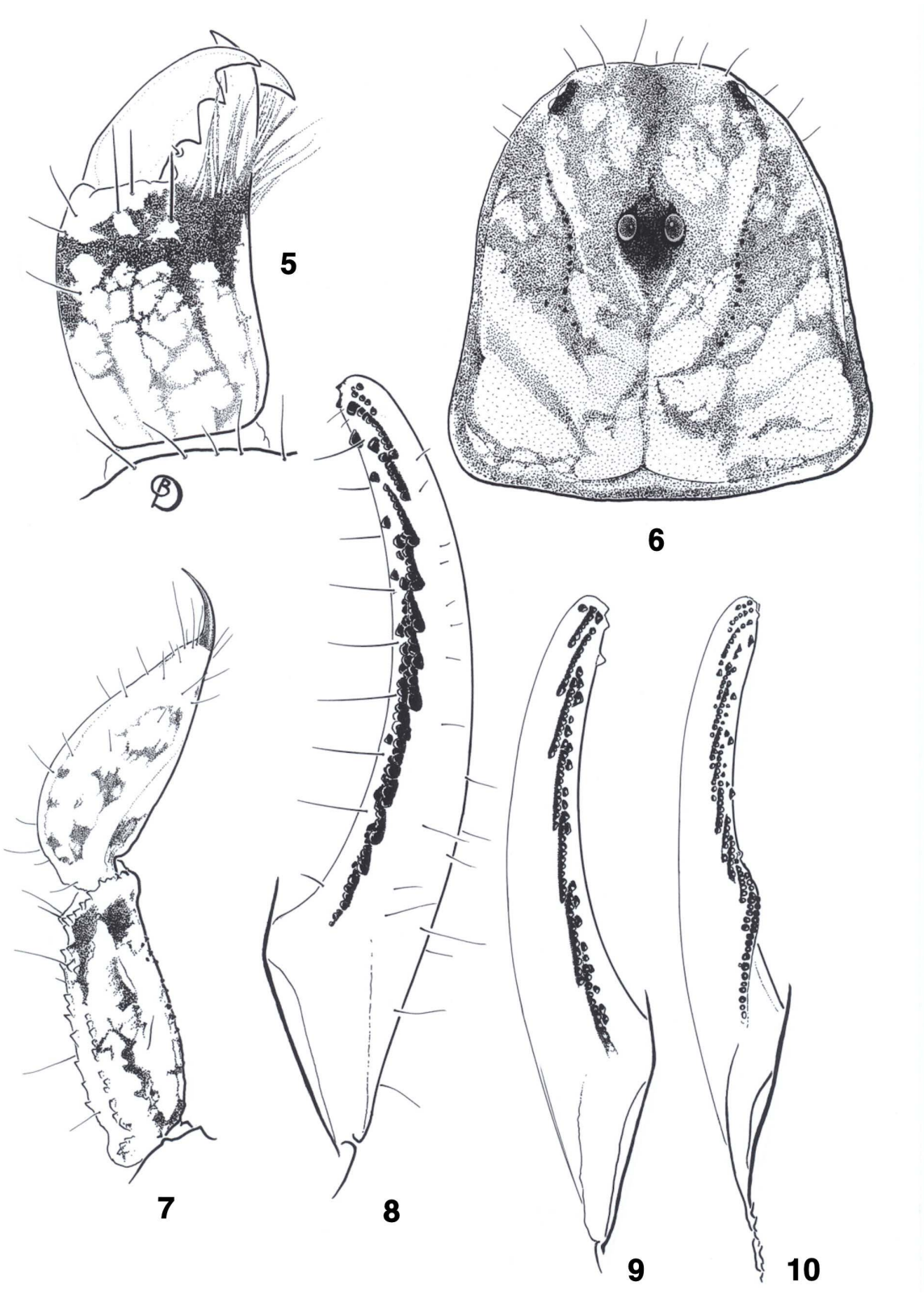
Etymology. The specific name refers to the Islands of Andaman where the new species was collected.

Material. Indian, Andaman Islands, Little Andaman, VIII/1966 (collected by local people; Sreenivasa-Reddy leg.). Male holotype. Deposited in the Muséum national d'Histoire naturelle, Paris (MNHN-RS-8848).

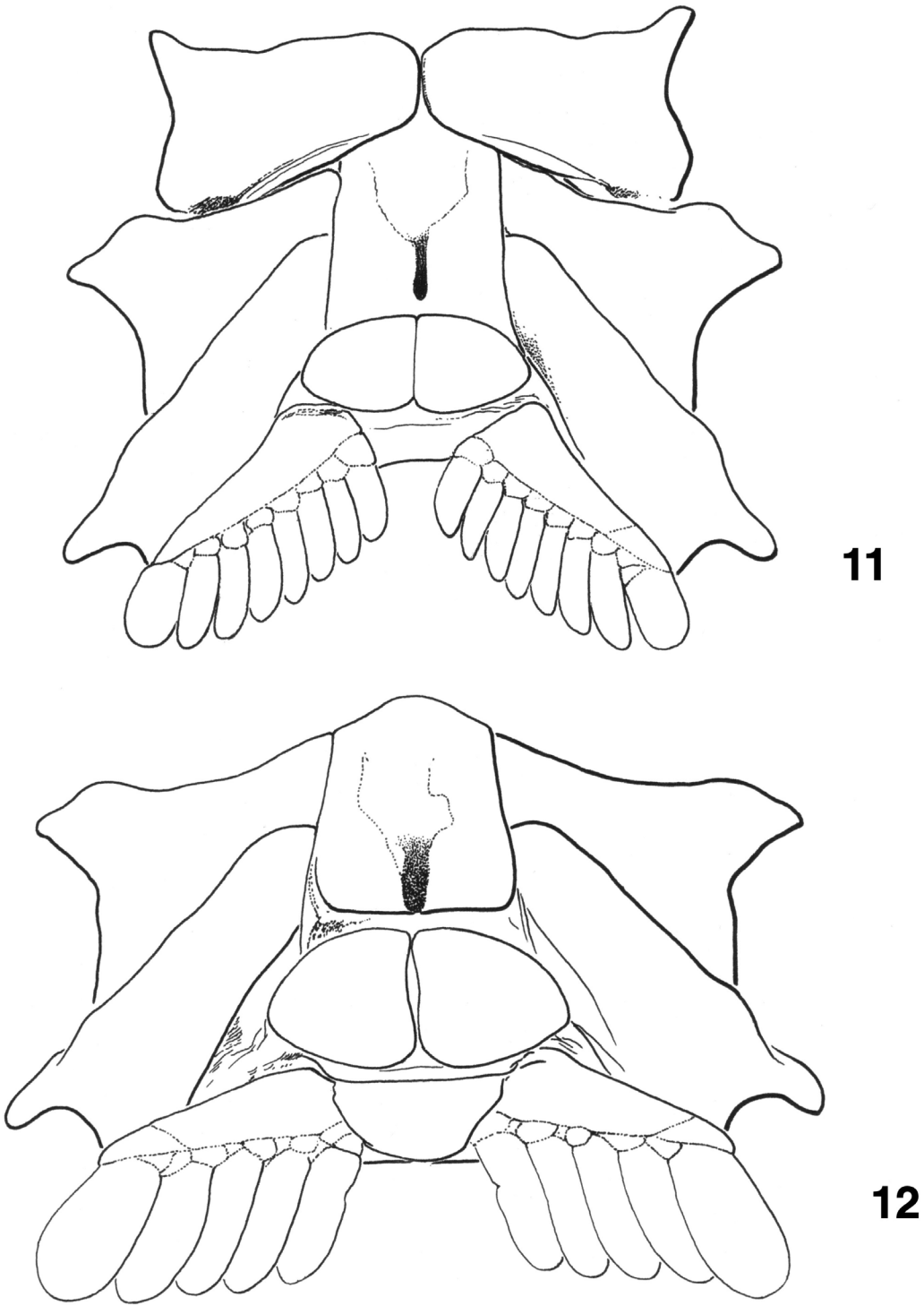
Description

Coloration: Basically yellowish to reddish-yellow, intensely marked with variegated brownish. Carapace reddish-yellow, with dark spots anteriorly. Tergites yellowish with diffused variegated spots. Metasomal segments yellowish with variegated spots. Telson yellowish with variegated spots; tip of aculeus reddish. Chelicerae yellowish with variegated spots; fingers and teeth dark reddish. Pedipalps reddish-yellow; femur and patella more intensely spotted than chela; dentate margins of fingers dark reddish. Legs yellowish with diffused brownish spots. Venter and sternites yellowish; pectines pale yellow.

Morphology: Carapace moderately narrowed anteriorly; anterior margin almost straight, with a minute concavity; acarinate and almost smooth, with some minute granulations laterally; furrows shallow. Two pairs of lateral eyes, and one pair of moderate median eyes, about 1.5 times the size of lateral eyes; median eyes anterior to the centre of the carapace. Tergites smooth; carinae obsolete. Sternum pentagonal, longer

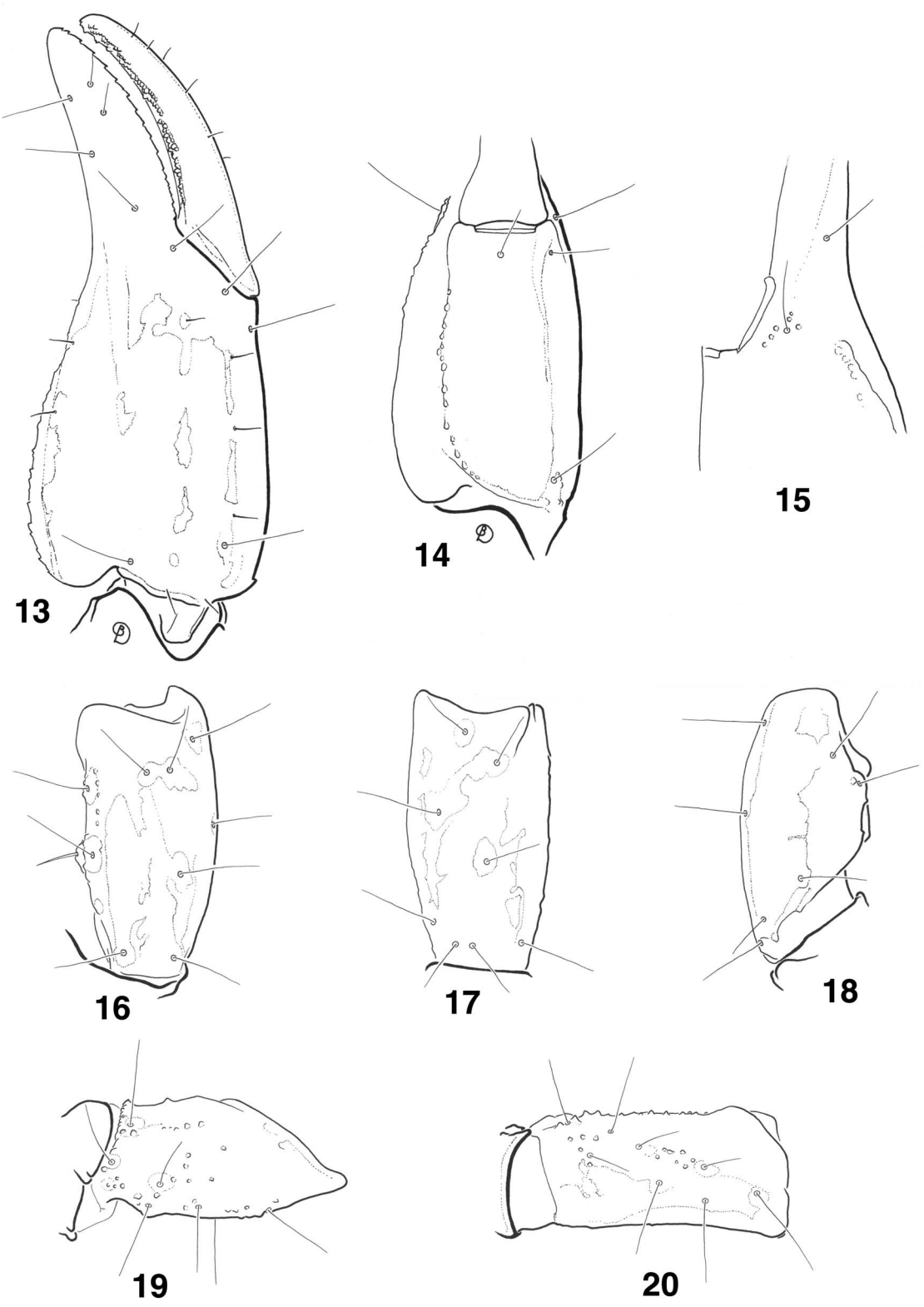


Figures 5−10: *Chaerilus andamanensis* **sp. n.**, male holotype. **5.** Chelicera. **6.** Carapace. **7.** Metasomal segment V and telson, lateral aspect. **8.** Cutting edge of movable finger with rows of granules and absence of a basal lobe. **9−10.** Idem for *Chaerilus borneensis*, male holotype, without a basal lobe and, for *Chaerilus variegatus*, male from Java, with a basal lobe.



Figures 11−12: Male sternum, genital operculum and pectines. **11.** *Chaerilus andamanensis* **sp. n.**, male holotype. **12.** *Chaerilus borneensis*, male from North of Borneo.

than wide; genital operculum plates with sub-oval shape; genital papillae not observable. Pectinal tooth count 8-8 in male holotype. Sternites smooth with spiracles small and oval-shaped; carinae absent from VII. Metasomal segments I to III wider than long; segments IV and V longer than wide. All the carinae moderately granular; ventral carinae absent or obsolete on segments I and II, weakly marked on segments III and IV; latero-ventral



Figures 13−20: *Chaerilus andamanensis* **sp. n.**, male holotype. Trichobothrial pattern. **13−15.** Chela, dorso-external, ventral and internal aspects. **16−18.** Patella, dorsal, external and ventral aspects. **19−20.** Femur, dorsal and external aspects.

and ventral carinae on segment V composed of spinoid granules. Vesicle elongated with a pear-like shape, smooth; aculeus short and weakly curved. Pedipalps not elongated; femur with five carinae; internal with a few spinoid granules. Patella with seven vestigial carinae. Chela weakly enlarged and with eight carinae, weakly to moderately granular. Tegument almost smooth. Fixed and movable fingers shorter than manus, with 13-14 rows of granulations on the dentate margins; movable finger of chela pedipalp without a basal lobe. Chelicerae characteristic of the family Chaerilidae (Vachon, 1963); with four *va* denticles on the fixed finger. Trichobothriotaxy of type B; orthobothriotaxic (Vachon, 1974); femur with 9 trichobothria, patella with 14, and chela with 14. Legs with pedal spurs strongly developed. Tarsi with two rows of spiniform setae and a medial line of 6, 7, 7, 8 small spinules on legs I to IV. Hemispermatophore unknown.

Morphometric values (in mm) of the male holotype. Total length (including telson), 24.4 (including telson). Carapace: length, 4.0; anterior width, 2.0; posterior width, 3.8. Mesosoma length, 6.8. Metasomal segments. I: length, 1.3; width, 1.9; II: length, 1.6; width, 1.8; III: length, 1.7; width, 1.8; IV: length, 1.9; width, 1.7; V: length, 3.2; width, 1.6; depth, 1.3. Telson length, 3.9. Vesicle: width, 1.7; depth, 1.4. Pedipalp: femur length, 2.9, width, 1.4; patella length, 3.1, width, 1.5; chela length, 6.3, width, 2.0, depth, 2.5; movable finger length, 3.3.

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